CLAIMS:

1.(Currently amended) A method for producing a superconductor having a high copper to superconductor composition (Cu/SC) ratio by cross-sectional area, comprising in sequence the steps of:

(a) preparing by a sequence of operations which include one or more drawing steps, an assembly formed of one or more filaments of a NbTi superconductor composition or of Nb as a precursor component for a Nb_3Sn superconductor alloy composition, which filaments are embedded in a copper-based matrix: and

(b) without subjecting said assembly to a prior heating step to diffuse an alloying element into said filaments, electroplating the assembly from step (a) with copper to increase the Cu/filament ratio by cross-sectional area in the resulting product, and thereby increase the said Cu/SC ratio to improve the stability of the final superconductor; and

(c) subsequent to step (b) heat diffusing said alloying element into said filaments in the instance where said filaments comprise said Nb superconductor precursor and said matrix includes Sn as said alloying element for said Nb_3Sn superconductor composition, said heat diffusing being conducted while preventing diffusion of said Sn alloying element into the said electroplated copper by means of a diffusion barrier layer, and wherein when said diffusing to form Nb_3Sn is carried out said electroplated assembly is in the form of a coil for a magnet.

2. (original). The method of claim 1, wherein the superconductor comprises NbTi.

3. (Canceled)

4. (Original) The method of claim 1, wherein the Cu/filament ratio by area in the product of step (a) is from about 0.5 to 3 and wherein the Cu/SC ratio in the final product resulting from said method is from about 2.0 to 5.0.

5. (Original) The method of claim 4, wherein said Cu/filament cross-sectional area ratio in the product of step (a) is from about 0.5 to 1.5.

6. (Original) The method of claim 5, wherein the superconductor or precursor component in step (a) is a multifilament wire wherein the Cu/filament cross-sectional area ratio is at least 1.0.

7. (Original) The method of claim 5, wherein the superconductor or precursor component in step (a) is a single core wire and the said Cu/filament cross-sectional area ratio in the product of step (a) is from about 0.5 to 1.0.

8. (Currently amended) The method of claim 6, wherein said ~~core wire is~~ multifilaments comprise said NbTi superconductor composition.

9. (Original) The method of claim 7, wherein said core wire is NbTi.

10. (Currently amended) The method of claim 6, wherein said ~~wire~~ filaments comprise Nb which in step (c) is reacted with Sn contained in said matrix to form Nb_3Sn.

11. (Currently amended) The method of claim ~~7~~ 5, wherein said ~~core wire is~~ one or more filaments comprise Nb which in step (c) is reacted with Sn contained in said matrix to form Nb_3Sn.

12. (Currently Amended) The method of claim 1, wherein the current density used in step (b) for electroplating is at least 300 amp/ft^2.

13. (Original) The method of claim 1, wherein the product of step (b) is subjected to further processing.

14. (Original) The method of claim 1, wherein the product of step (b) is subjected to a metal working step prior to step (c).